

We claim:

1. A catalytic converter device for use in a vent comprising:
  - a ceramic substrate having a first surface, a second surface, a circumferential surface, and a plurality of apertures extending through the substrate from the first surface to the second surface;
  - a material coating the ceramic substrate, wherein the coating material comprises a catalyst; and
  - a mounting ring comprising
    - (i) a body in the shape of a ring;
    - (ii) one or more retaining tabs extending from the body which secure the ceramic substrate within the ring about the circumferential surface of the ceramic substrate; and
    - (iii) one or more locking tabs extending from the body, the one or more locking tabs engagable with one or more surfaces the vent to secure the catalytic converter within an orifice of the vent such that gases flowing through the vent will pass through the apertures of the substrate.
2. The catalytic converter device of claim 1, wherein the ceramic substrate has a thickness of between about 1/32 inch and about 1/2 inch.
3. The catalytic converter device of claim 2, wherein the ceramic substrate is in the shape of a round disk.
4. The catalytic converter device of claim 3 wherein the ceramic substrate has a diameter of between about 1/2 inch and about 2 inches.
5. The catalytic converter device of claim 3, wherein the ceramic substrate has a thickness of about 1/4 inch and a diameter of about 1 1/4 inches.

6. The catalytic converter device of claim 1, wherein the ceramic substrate comprises cordierite.
7. The catalytic converter device of claim 1, wherein the ceramic substrate comprises a wash coat.
8. The catalytic converter device of claim 1, wherein the catalyst is a noble metal catalyst.
9. The catalytic converter device of claim 8, wherein the noble metal catalyst is selected from the group consisting of platinum, palladium, rhodium, and mixtures thereof.
10. The catalytic converter device of claim 1, wherein the mounting ring is formed from a metal selected from the group consisting of steels, stainless steels, aluminum, aluminized steel, mixtures thereof, and combinations thereof.
11. The catalytic converter device of claim 1, wherein the mounting ring comprises two, three, or four retaining tabs.
12. The catalytic converter device of claim 11, wherein the mounting ring comprises four retaining tabs.
13. The catalytic converter device of claim 1, wherein the mounting ring comprises two, three, or four locking tabs.
14. The catalytic converter device of claim 13, wherein the mounting ring comprises four locking tabs.

15. The catalytic converter device of claim 1, wherein the locking tabs extend from the retaining tabs.

16. The catalytic converter device of claim 1, wherein the mounting ring further comprises a first lip extending inwardly from a first edge of the body, the first lip working in conjunction with the retaining tabs folded over a portion of the first surface of the ceramic substrate at a second edge of the body to secure the ceramic substrate within the ring.

17. The catalytic converter device of claim 1, wherein the mounting ring further comprises a second lip extending outwardly from a second edge of the body, wherein a portion of said one or more surfaces of the exhaust vent of the oven can be clipped into place between the second lip and the locking tabs to secure the catalytic converter within the orifice of the exhaust vent.

18. The catalytic converter device of claim 1, wherein:

the catalyst is a noble metal selected from the group consisting of platinum, palladium, rhodium, and mixtures thereof;

the ceramic substrate has a thickness of about ¼ inch and a diameter of about 1 inch; and

the mounting ring is formed from a metal and comprises

(i) four retaining tabs and four locking tabs, with one locking tab extending from each retaining tab;

(ii) a first lip extending inwardly from a first edge of the body, the first lip working in conjunction with the retaining tabs folded over a portion of the first surface of the ceramic substrate at a second edge of the mounting ring to secure the ceramic substrate within the ring; and

(iii) an upper ring extending outwardly from the second edge of the body, a portion of said one or more surfaces of the vent being clipped between the second lip and the locking tabs to secure the catalytic converter within the orifice of the vent.

19. An oven comprising the catalytic converter device of claim 1.

20. The oven of claim 19 wherein the oven is a self-cleaning kitchen oven.

21. A method of reducing smoke and volatile organic compounds present in a gas flowing from through a vent, the method comprising:

providing in the vent a catalytic converter device at a position effective to thermally activate the catalytic converter device, the catalytic converter device comprising:

a ceramic substrate having a first surface, a second surface, a circumferential surface, and a plurality of apertures extending through the substrate from the first surface to the second surface;

a material coating the ceramic substrate, wherein the coating material comprises a catalyst; and

a mounting ring comprising

(i) a body in the shape of a ring;

(ii) one or more retaining tabs extending from the body which secure the ceramic substrate within the ring about the circumferential surface of the ceramic substrate; and

(iii) one or more locking tabs extending from the body, the one or more locking tabs engagable to one or more surfaces of the vent to secure the catalytic converter within an orifice of the vent; and

flowing the gas through the apertures of the substrate to oxidize smoke and volatile organic compounds present in the gas.

22. The method of claim 21 wherein the vent is installed in a kitchen range comprising a self-cleaning oven.

23. A vent for venting gases from an oven, comprising:

a tube having an inlet orifice and an outlet; and

the catalytic converter device of claim 1 secured within the inlet orifice, wherein the one or more locking tabs are engaged with one or more surfaces of the tube adjacent the inlet orifice.

24. A catalytic converter device for use in a vent comprising:
- one or more screens formed of a plurality of woven metal threads, defining a plurality of apertures therebetween;
  - a material coating the screens, wherein the coating material comprises a catalyst; and
  - a mounting ring comprising
    - (i) a body in the shape of a ring;
    - (ii) one or more retaining tabs extending from the body which secure one or more screens within the ring; and
    - (iii) one or more locking tabs extending from the body, the one or more locking tabs engagable with one or more surfaces of the vent to secure the catalytic converter device within an orifice of the vent such that gases flowing through the vent will pass through the apertures of the one or more screens.